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Form 3160-3
(August 2007)

JUL 26 2012

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

FORM APPROVED
OMB No. 1004-0137
Expires July 31, 2010

Farmington Field Office
Bureau of Land Management

APPLICATION FOR PERMIT TO DRILL OR REENTER

5. Lease Serial No. NM 51000 and NM 4958
6. If Indian, Allottee or Tribe Name N/A
7. If Unit or CA Agreement, Name and No. Pending
8. Lease Name and Well No. Escrito H31-2409 01H
9. API Well No. 30-045-35391
10. Field and Pool, or Exploratory Bisti Lower-Gallup
11. Sec., T. R. M. or Blk. and Survey or Area Section 31, T24N, R9W NMMPM
12. County or Parish San Juan
13. State NM
15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) SHL is 341' from West lease line
16. No. of acres in lease NM 51000 160.84 acres NM 4958 1,721.01 acres
17. Spacing Unit dedicated to this well 160.48 acres 52N2
18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Wellbore is 947' south of April Surprise 7
19. Proposed Depth 4605' TVD/9012' MD
20. BLM/BIA Bond No. on file COB-000235 RCVD APR 12 '13 OIL CONS. DIV. DIST. 3
21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6831' GL, 6844' KB
22. Approximate date work will start* 01/23/2013
23. Estimated duration 45 days

1a. Type of work: <input checked="" type="checkbox"/> DRILL <input type="checkbox"/> REENTER
1b. Type of Well: <input checked="" type="checkbox"/> Oil Well <input type="checkbox"/> Gas Well <input type="checkbox"/> Other <input checked="" type="checkbox"/> Single Zone <input type="checkbox"/> Multiple Zone
2. Name of Operator Encana Oil & Gas (USA) Inc.

3a. Address 370 17th Street, Suite 1700 Denver, CO 80202	3b. Phone No. (include area code) 720-876-3989
-------------------------------------------------------------	---------------------------------------------------

4. Location of Well (Report location clearly and in accordance with any State requirements.)* At surface 1985' FNL and 341' FEL Section 31, T24N, R9W At proposed prod. zone 1985' FNL and 330' FWL Section 31, T24N, R9W

14. Distance in miles and direction from nearest town or post office* +/- 36.1 miles south of Bloomfield, NM

15. Distance from proposed* location to nearest property or lease line, ft. (Also to nearest drig. unit line, if any) SHL is 341' from West lease line

18. Distance from proposed location* to nearest well, drilling, completed, applied for, on this lease, ft. Wellbore is 947' south of April Surprise 7

21. Elevations (Show whether DF, KDB, RT, GL, etc.) 6831' GL, 6844' KB

24. Attachments

The following, completed in accordance with the requirements of Onshore Oil and Gas Order No. 1, must be attached to this form:

1. Well plat certified by a registered surveyor.
2. A Drilling Plan.
3. A Surface Use Plan (if the location is on National Forest System Lands, the SUPO must be filed with the appropriate Forest Service Office).
4. Bond to cover the operations unless covered by an existing bond on file (see Item 20 above).
5. Operator certification
6. Such other site specific information and/or plans as may be required by the BLM.

25. Signature <i>Brenda R. Linster</i>	Name (Printed/Typed) Brenda R. Linster	Date 07/23/2012
Title Regulatory Advisor		
Approved by (Signature) <i>[Signature]</i>	Name (Printed/Typed) AFM	Date 4/8/13
Title AFM	Office FEO	

Application approval does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.
Conditions of approval, if any, are attached.

Title 18 U.S.C. Section 1001 and Title 43 U.S.C. Section 1212, make it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

(Continued on page 2)

*(Instructions on page 2)

BLM'S APPROVAL OR ACCEPTANCE OF THIS ACTION DOES NOT RELIEVE THE LESSEE AND OPERATOR FROM OBTAINING ANY OTHER AUTHORIZATION REQUIRED FOR OPERATIONS ON FEDERAL AND INDIAN LANDS

CONFIDENTIAL

NOTIFY AZTEC OCD 24 HRS.
PRIOR TO CASING & CEMENT

NMOCD

Hold C104

for Directional Survey
and "As Drilled" plat

DRILLING OPERATIONS AUTHORIZED ARE
SUBJECT TO COMPLIANCE WITH ATTACHED
"GENERAL REQUIREMENTS".

APR 19 2013 ca

This action is subject to technical and procedural review pursuant to 43 CFR 3165.3 and appeal pursuant to 43 CFR 3165.4

District I
1625 N. French Drive, Hobbs, NM 88240
Phone: (575) 393-6161 Fax: (575) 393-0720

District II
811 S. First Street, Artesia, NM 88210
Phone: (575) 748-1283 Fax: (575) 748-9720

District III
1000 Rio Brazos Road, Aztec, NM 87410
Phone: (505) 334-6178 Fax: (505) 334-6170

District IV
1220 S. St. Francis Drive, Santa Fe, NM 87505
Phone: (505) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals & Natural Resources Department

Form C-102
Revised August 1, 2011

Submit one copy to
Appropriate District Office

OIL CONSERVATION DIVISION

1220 South St. Francis Drive
Santa Fe, NM 87505

RECEIVED
COMMENCED REPORT

JUL 26 2012

WELL LOCATION AND ACREAGE DEDICATION PLAT

Farmington Field Office
Bureau of Land Management

*API Number 30-045-35391	*Pool Code 5890	*Pool Name BISTI LOWER - GALLUP
*Property Code 39824	*Property Name ESCRITO H31-2409	*Well Number 01H
*GRID No. 282327	*Operator Name ENCANA OIL & GAS (USA) INC.	*Elevation 6831'

10 Surface Location

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
H	31	24N	9W		1985	NORTH	341	EAST	SAN JUAN

11 Bottom Hole Location If Different From Surface

UL or lot no.	Section	Township	Range	Lot Idn	Feet from the	North/South line	Feet from the	East/West line	County
E	31	24N	9W	Lot 2	1985	NORTH	330	WEST	SAN JUAN

12 Dedicated Acres 160.48 Acres - (S/2 N/2)	13 Joint or Infill	14 Consolidation Code	15 Order No.
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NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

16

17 OPERATOR CERTIFICATION

I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unleased mineral interest in the land including the proposed bottom-hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.

Signature: *Brenda R. Linster* Date: 07-24-12
Printed Name: Brenda R. Linster
E-mail Address: brenda.linster@encana.com

18 SURVEYOR CERTIFICATION

I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision, and that the same is true and correct to the best of my belief.

Survey Date: FEBRUARY 9, 2012
Signature and Seal of Professional Surveyor

JASON C. EDWARDS
NEW MEXICO
REGISTERED PROFESSIONAL SURVEYOR
15269

Certificate Number 15269

Diagram showing well location and acreage dedication plat. The diagram includes Lot 1, Lot 2, Lot 3, and Lot 4. The well location is marked with a circle and labeled '330' and '341'. The diagram also shows the 'END OF LATERAL' and 'SURFACE LOCATION' with coordinates and datums. The diagram is labeled '31' and '31'.

Directions from the Intersection of US Hwy 550 & US Hwy 64
in Bloomfield, NM to Encana Oil & Gas (USA) Inc. Escrito H31-2409 01H
1985' FNL & 341' FEL, Section 31, T24N, R9W, N.M.P.M., San Juan County, NM

Latitude: 36.27220°N Longitude: 107.82236°W Datum: NAD1983

From the intersection of US Hwy 550 & US Hwy 64 in Bloomfield, NM, travel Southerly on US Hwy 550 for 27.9 miles to State Hwy #57 @ Mile Marker 123.4;

Go right (South-westerly) on State Hwy #57 for 3.1 miles to fork in road;

Go left (South-westerly) exiting State Hwy #57 for 3.0 miles to fork in road;

Go left (South-easterly) for 0.6 miles to fork in road;

Go right (South-easterly) for 0.4 miles to fork in road;

Go left (South-westerly) for 0.6 miles to fork in road;

Go right (South-westerly) for 0.4 miles to new access on left-hand side of existing roadway which continues for 715' to staked location.

Escrito H31-2409 01H

SHL: SENE Section 31, T24N, R9W
1985 FNL and 341 FEL

BHL: SWNW Section 31, T24N, R9W
1985 FNL and 330 FWL

San Juan County, New Mexico

Lease Number: NM 51000 and NM 4958

Encana Oil & Gas (USA) Inc. Drilling Plan

1. ESTIMATED TOPS OF GEOLOGICAL MARKERS (TVD)

The estimated tops of important geologic markers are as follows:

<u>Formation</u>	<u>Depth (TVD)</u>
Ojo Alamo Ss.	630'
Kirtland	756'
Fruitland Coal	1117'
Pictured Cliffs	1359'
Lewis	1533'
Cliffhouse	2108'
Menefee	2804'
Point Lookout	3756'
Mancos	3928'
Gallup	4733'

The referenced surface elevation is 6831', KB 6844'

2. ESTIMATED DEPTH OF POTENTIAL WATER, OIL, GAS, & OTHER MINERAL BEARING FORMATIONS

<u>Substance</u>	<u>Formation</u>	<u>Depth (TVD)</u>
Gas	Fruitland Coal	1117'
Gas	Pictured Cliffs	1359'
Gas	Cliffhouse	2108'
Gas	Point Lookout	3756'
Oil/Gas	Mancos	3928'

All shows of fresh water and minerals will be reported and protected.

3. PRESSURE CONTROL

- a) Pressure control equipment and configuration will be designed to meet 2M standards.
- b) Working pressure on rams and BOPE will be 3,000 psi
- c) Function test and visual inspection of the BOP will be conducted daily and noted in the IADC Daily Drilling Report.
- d) The Annular BOP will be pressure tested to a minimum of 50 percent of its rated working pressure.
- e) Blind and Pipe Rams/BOP will be tested against a test plug to either 70 percent of the casings internal yield pressure or 100 percent of rated working pressure.
- f) Pressure tests are required before drilling out from under all casing strings set and cemented in place.
- g) BOP controls must be installed prior to drilling the surface casing plug and will remain in use until the well is completed or abandoned.
- h) BOP testing procedures and testing frequency will conform to Onshore Order No. 2.
- i) BOP remote controls shall be located on the rig floor at a location readily accessible to the driller. Master controls shall be on the ground at the accumulator and shall have the capability to function all preventers.

Escrito H31-2409 01H

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- j) The kill line shall be 2-inch minimum and contain two kill line valves, one of which shall be a check valve.
- k) The choke line shall be a 2-inch minimum and contain two choke line valves (2-inch minimum).
- l) The choke and manifold shall contain two adjustable chokes.
- m) Hand wheels shall be installed on all ram preventers.
- n) Safety valves and wrenches (with subs for drill string connections) shall be available on the rig floor at all times.
- o) Inside BOP or float sub shall also be available on the rig floor at all times.

Proposed BOP and choke manifold arrangements are attached.

4. CASING & CEMENTING PROGRAM

The proposed casing and cementing program has been designed to protect and/or isolate all usable water zones, potentially productive zones, lost circulation zones, abnormally pressured zones, and any prospectively valuable deposits of minerals. Any isolating medium other than cement shall receive approval prior to use. The casing setting depth shall be calculated to position the casing seat opposite a competent formation which will contain the maximum pressure to which it will be exposed during normal drilling operations. All indications of useable water shall be reported.

- a) The proposed casing design is as follows:

Casing	Depth	Hole Size	Csg Size	Weight	Grade
Conductor	0-60'	30"	20"	94#	H40, STC New
Surface	0'-500'	17 1/2"	13 3/8"	48#	H40, STC New
Intermediate	0'-3875'	12 1/4"	9 5/8"	40#	J55, STC New
Production Liner	3675'-9012'	8 1/2"	5 1/2"	17#	B80*, LTC New

Casing String				Casing Strength Properties			Minimum Design Factors		
Size	Weight (lb/ft)	Grade	Connection	Collapse (psi)	Burst (psi)	Tensile (1000lb)	Collapse	Burst	Tension
13 3/8"	48	H40	STC	740	1730	322	1.125	1.1	1.5
9 5/8"	40	J55	STC	2570	3950	452	1.125	1.1	1.5
5 1/2"	17	B80	LTC	6290	7740	320	1.125	1.1	1.5

*B80 pipe specifications are attached

Casing design is subject to revision based on geologic conditions encountered.

All casing strings below the conductor shall be pressure tested to 0.22 psi per foot of casing string length or 1,500 psi, whichever is greater, but not to exceed 70 percent of the minimum internal yield. If pressure declines more than 10 percent in 30 minutes, corrective action shall be taken.

- b) The proposed cementing program is as follows:

Top plugs shall be used to reduce contamination of cement by displacement fluid. A bottom plug or other acceptable technique, such as a pre-flush fluid, inner string cement method, etc. shall be utilized to help isolate the cement from contamination by the mud fluid being displaced ahead of the cement slurry.

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Casing	Depth	Cement Volume (sacks)	Cement Type&Yield	Designed TOC	Centralizers
Conductor	60'	100sk	Redi-mix Construction Grade Cement	Surface	None
Surface	500'	291sk	Type III Cement + 1% CaCl + 0.25lb/sk Cello Flake + 0.2% FL, 14.6ppg, 1.38cuf/sk	Surface	1 per joint on bottom 3 joints
Intermediate	3875'	30% open hole excess Lead:657sk Tail: 160sk	Lead: PremLite + 3% CaCl + 0.25lb/sk CelloFlake + 5lb/sk LCM, 12.1ppg 2.13cuf/sk Tail: Type III Cmt + 1% CaCl + 0.25lb/sk Cello Flake 14.5ppg 1.38cuf/sk	Surface	1 per joint for bottom 3 joints, 1 every 3 joints for remaining joints, turbolizers at base of Ojo Alamo
Production Liner*	3675'-9012'	None – External casing packers	N/A	N/A	N/A

*Production liner clarification: Utilizing external swell casing packer system for zonal isolation will not use cement in the production liner.

Actual volumes will be calculated and determined by conditions onsite. All cement slurries will meet or exceed minimum BLM and New Mexico Oil Conservation Division requirements. Slurries used will be the slurries listed above or equivalent slurries depending on service provider selected. Cement yields may change depending on slurries selected.

All waiting on cement times shall be a minimum of 8 hours or adequate to achieve a minimum of 500 psi compressive strength at the casing shoe prior to drilling out.

5. WELL PLAN & DIRECTIONAL DRILLING PROGRAM

The proposed horizontal well will have a kick off point of 4060'. Directional plans are attached.

Description	Proposed Depth (TVD/MD)	Formation
Horizontal Lateral TD	4605'/9012'	Gallup

Escrito H31-2409 01H

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1985 FNL and 341 FEL

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1985 FNL and 330 FWL

San Juan County, New Mexico

Lease Number: NM 51000 and NM 4958

6. DRILLING FLUIDS PROGRAM

a) Vertical Portion

Hole Size (in)	TVD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
30"	0-60'	Fresh Water	8.3-9.2	38-100	4-28
17 1/2"	0-500'	Fresh Water	8.4-8.6	60-70	NC
12 1/4"	500-3875'	Fresh Water LSND	8.5-8.8	40-50	8-10
8 1/2"	3875-4060'	Fresh Water LSND	8.5-8.8	40-50	8-10

b) Kick off to Horizontal Lateral:

Hole Size (in)	MD (ft)	Mud Type	Density (lb/gal)	Viscosity (sec/qt)	Fluid Loss (cc)
8 1/2"	4060' (KOP)-9012'	Synthetic Oil Based Mud	8.6-9.0	15-25	<15

- c) There will be sufficient mud on location to control a blowout should one occur. Mud flow and volume will be monitored both visually and with electronic pit volume totalizers. Mud tests shall be performed every 24 hours after mudding up to determine, as applicable: density, viscosity, gel strength, filtration, and pH.
- d) A closed-loop system will be used to recover drilling fluid and dry cuttings in both phases of the well and on all hole intervals, including fresh water and oil-based operations. Above-ground tanks will be utilized to hold cuttings and fluids for rig operations. A frac tank will be on location to store fresh water. Waste will be disposed of properly at an EPA-approved hazardous waste facility. Fresh water cuttings will be disposed of at Basin Disposal, Inc. and/or Industrial Ecosystems, Inc. The location will be lined in accordance with the Surface Use Plan of Operations.

7. TESTING, CORING and LOGGING

- a) Drill Stem Testing – None anticipated
- b) Coring – None anticipated.
- c) Mud Logging – Mud loggers will be on location from intermediate casing point to TD.
- d) Logging – See Below

Cased Hole:

CBL/CCL/GR/VDL will be run as needed for perforating control

8. ABNORMAL PRESSURES & HYDROGEN SULFIDE

The anticipated bottom hole pressure is +/- 2323 psi based on a 9.0 ppg at 4964' TVD of the landing point of the horizontal lateral. No abnormal pressure or temperatures are anticipated.

No hydrogen sulfide gas is anticipated, however, if H₂S is encountered, the guidelines in Onshore Order No. 6 will be followed.

Escrito H31-2409 01H

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San Juan County, New Mexico

Lease Number: NM 51000 and NM 4958

9. ANTICIPATED START DATE AND DURATION OF OPERATIONS

Drilling is estimated to commence on January 23, 2013. It is anticipated that completion operations will begin within 30 days after the well has been drilled depending on fracture treatment schedules with various pumping service companies.

It is anticipated that the drilling of this well will take approximately 45 days.

LOC: Sec 31-T24N-R9W County: San Juan WELL: Escrito H31-2409 01H			New Mexico Mancos WELL SUMMARY			<div>encana™</div> <div>natural gas</div>		ENG: J. Fox/ A. 6/5/12 RIG: GLE: 6831 RKBE:	
MWD LWD	OPEN HOLE LOGGING	FORM	DEPTH			HOLE SIZE	CASING SPECS	MW MUD TYPE	DEVIATION INFORMATION
			TVD	MD					
			60	60'		30	20" 94# 100sx Type I Neat 48.8ppg cmt	Fresh wtr 8.3-9.2	
Surveys After csg is run	None		500	500		17 1/2	13 3/8" 48ppf H40 STC TOC @ surface 291 sks Type III Cmt	Fresh wtr 8.4-8.6	Vertical <1°
Surveys every 500'	No OH logs Mud logger onsite	Ojo Alamo Kirtland Shale Fruitland Coal Pictured Cliffs Ss Lewis Shale Cliffhouse Ss Menefee Fn Point Lookout Ss Mancos Sh	630 756 1117 1359 1533 2108 2804 3756 3928 3875	3875		12 1/4	9 5/8" 40ppf J55 STC TOC @ surface 50% OH excess: 817 sks Lead 657 sks Tail 160 sks	Fresh Wtr 8.5-8.8	Vertical <1°
Surveys every 500' Gyro at CP MWD Gamma Directional	No OH Logs	KICK OFF PT Mancos Silt Gallup Top horz target Base Gallup	4060 4474 4733 4633 5072	4964		8 1/2	5 1/2" 17ppf I/L80 LTC Running external swellable csg packers for isolation of prod string 200' overlap at liner top 4048' Lateral	Fresh Wtr in pilot 8.5-8.8 Switch to OBM at K/O 8.6-9.0 8.6-9.0 OBM	KOP 4060 10 deg/100' .25deg updip 4605'TVD TD = 9012' MD

NOTES:

- 1) Drill with 30" bit to 60', set 20" 94# conductor pipe
- 2) Drill surface to 500', R&C 13 3/8" casing
- 3) N/U BOP and surface equipment
- 4) Drill to 3875' , 12 1/4" hole size
- 5) R&C 9 5/8" casing, circ cmt 50' into sur csg shoe
- 6) Drill 8 1/2" hole to KOP, switch to OBM
- 7) PU directional tools and start curve at 10deg/100' build rate
- 9) Land at 90deg, drill 4048' lateral to 9012', run 5 1/2" liner with external swellable csg packers



Boomerang Tube LLC

CASING (OR) TUBING DESCRIPTION AND PERFORMANCE PROPERTIES

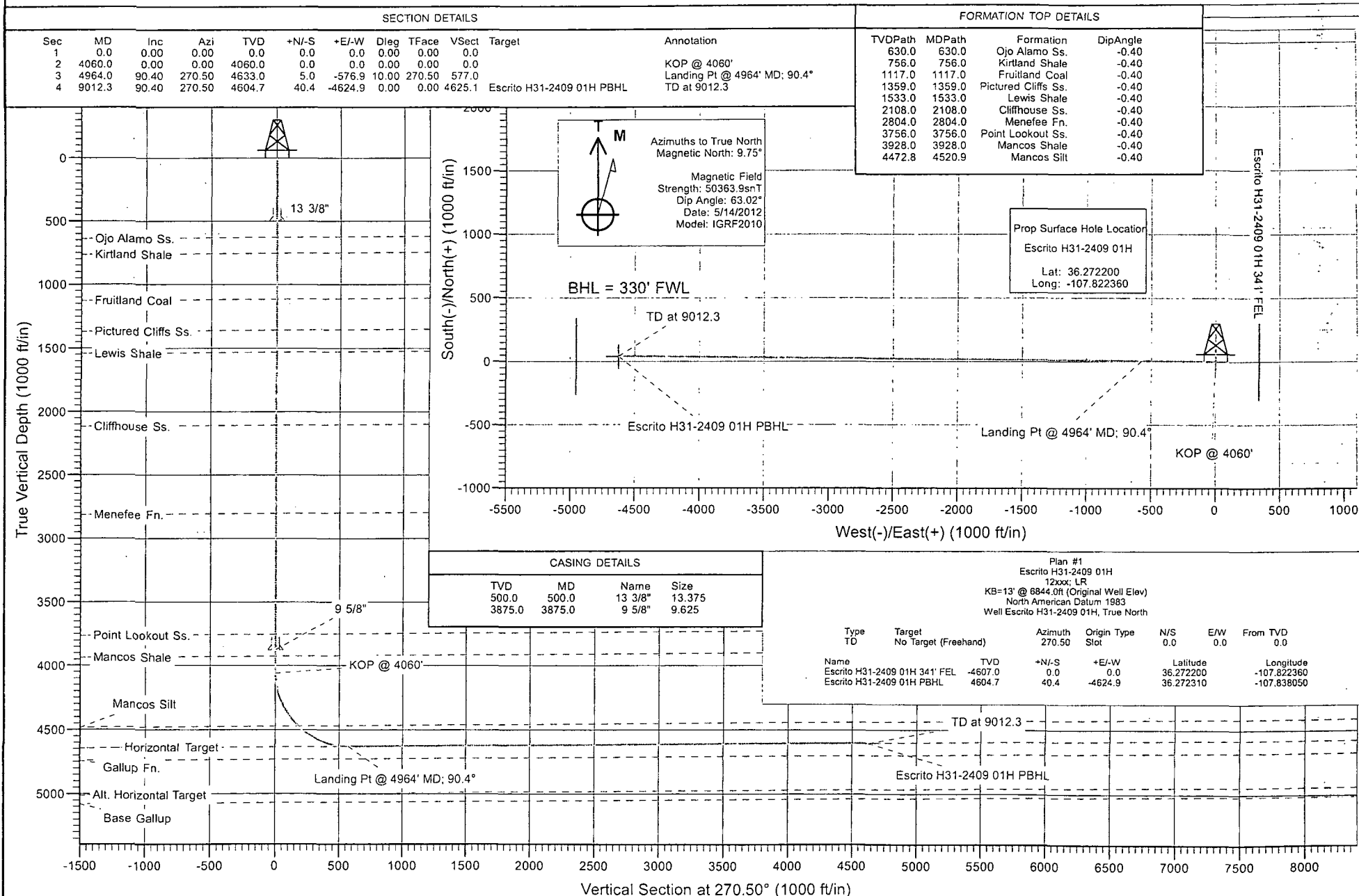
Pipe Outside Diameter (ins)	_____	5.500
Pipe Wall Thickness (ins)	_____	0.304
Nominal Weight Per Foot (lbs)	_____	17.00
Thread Name	_____	Long Thread CSG
Grade Name	_____	B-80
Pipe Minimum Yield (psi)	_____	80,000
Pipe Minimum Ultimate (psi)	_____	90,000
Coupling Minimum Yield (psi)	_____	80,000
Coupling Minimum Ultimate (psi)	_____	100,000
Coupling or Joint Outside Diameter (ins)	_____	6.050
Drift Diameter (ins)	_____	4.767
Plain End Weight per Foot (lbs)	_____	16.89
Joint Strength (lbs)	_____	320,000
Internal Yield (psi)	_____	7,740
Collapse Rating (psi)	_____	6,290

MAXIMUM DEPTH/LENGTH BASED ON MUD WTS & SAFETY FACTORS

Drilling Mud Weight (ppg)	_____	9.625
Tension Safety Factor	_____	1.80
Maximum Tension Length (ft)	_____	10,460
Internal Yield Safety Factor	_____	1.10
Maximum Depth for Internal Yield (ft)	_____	14,070
Collapse Safety Factor	_____	1.125
Maximum Collapse Depth (ft)	_____	11,180

API RELATED VALUES and INTERMEDIATE CALCULATION RESULTS

Coupling Thread Fracture Strength	_____	633,000
Pipe Thread Fracture Strength (lbs)	_____	320,000
Pipe Body Plain End Yield (lbs)	_____	397,000
Round Thread Pull-Out (lbs)	_____	335,000
Minimum Make-up Torque (ft-lbs)	_____	2,510
Nominal Make-up Torque (ft-lbs)	_____	3,350
Maximum Make-up Torque (ft-lbs)	_____	4,190
Coupling Internal Yield (psi)	_____	9,880
Pipe Body Internal Yield (psi)	_____	7,740
Leak @ E1 or E7 plane (psi)	_____	13,160
Pipe Hydrostatic Test Pressure @ 80 % SMYS	_____	7,100



Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan Co, NM
 Site: S31-T24N-R9W
 Well: Escrito H31-2409 01H
 Wellbore: Hz
 Design: Plan #1

Local Co-ordinate Reference: Well Escrito H31-2409 01H
 TVD Reference: KB=13' @ 6844.0ft (Original Well Elev)
 MD Reference: KB=13' @ 6844.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Project	San Juan Co, NM		
Map System:	US State Plane 1983	System Datum:	Mean Sea Level
Geo Datum:	North American Datum 1983		
Map Zone:	New Mexico Western Zone		

Site	S31-T24N-R9W				
Site Position:		Northing:	1,919,406.77 ft	Latitude:	36.275010
From:	Lat/Long	Easting:	2,726,375.80 ft	Longitude:	-107.822210
Position Uncertainty:	0.0 ft	Slot Radius:	13.200 in	Grid Convergence:	0.01 °

Well	Escrito H31-2409 01H					
Well Position	+N/-S	0.0 ft	Northing:	1,918,383.86 ft	Latitude:	36.272200
	+E/-W	0.0 ft	Easting:	2,726,331.70 ft	Longitude:	-107.822360
Position Uncertainty		0.0 ft	Wellhead Elevation:	ft	Ground Level:	6,831.0 ft

Wellbore	Hz				
Magnetics	Model Name	Sample Date	Declination (°)	Dip Angle (°)	Field Strength (nT)
	IGRF2010	5/14/2012	9.75	63.02	50,364

Design	Plan #1			
Audit Notes:				
Version:	Phase:	PLAN	Tie On Depth:	0.0
Vertical Section:	Depth From (TVD) (ft)	+N/-S (ft)	+E/-W (ft)	Direction (°)
	0.0	0.0	0.0	270.50

Plan Sections										
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Turn Rate (°/100ft)	TFO (°)	Target
0.0	0.00	0.00	0.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,060.0	0.00	0.00	4,060.0	0.0	0.0	0.00	0.00	0.00	0.00	
4,964.0	90.40	270.50	4,633.0	5.0	-576.9	10.00	10.00	0.00	270.50	
9,012.3	90.40	270.50	4,604.7	40.4	-4,624.9	0.00	0.00	0.00	0.00	Escrito H31-2409 01H

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan Co, NM
 Site: S31-T24N-R9W
 Well: Escrito H31-2409 01H
 Wellbore: Hz
 Design: Plan #1

Local Co-ordinate Reference: Well Escrito H31-2409 01H
 TVD Reference: KB=13' @ 6844.0ft (Original Well Elev)
 MD Reference: KB=13' @ 6844.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
0.0	0.00	0.00	0.0	0.0	0.0	0.0	0.00	0.00	Escrito H31-2409 01H 341' FEL
100.0	0.00	0.00	100.0	0.0	0.0	0.0	0.00	0.00	
200.0	0.00	0.00	200.0	0.0	0.0	0.0	0.00	0.00	
300.0	0.00	0.00	300.0	0.0	0.0	0.0	0.00	0.00	
400.0	0.00	0.00	400.0	0.0	0.0	0.0	0.00	0.00	
500.0	0.00	0.00	500.0	0.0	0.0	0.0	0.00	0.00	13 3/8"
600.0	0.00	0.00	600.0	0.0	0.0	0.0	0.00	0.00	
630.0	0.00	0.00	630.0	0.0	0.0	0.0	0.00	0.00	Ojo Alamo Ss.
700.0	0.00	0.00	700.0	0.0	0.0	0.0	0.00	0.00	
756.0	0.00	0.00	756.0	0.0	0.0	0.0	0.00	0.00	Kirtland Shale
800.0	0.00	0.00	800.0	0.0	0.0	0.0	0.00	0.00	
900.0	0.00	0.00	900.0	0.0	0.0	0.0	0.00	0.00	
1,000.0	0.00	0.00	1,000.0	0.0	0.0	0.0	0.00	0.00	
1,100.0	0.00	0.00	1,100.0	0.0	0.0	0.0	0.00	0.00	
1,117.0	0.00	0.00	1,117.0	0.0	0.0	0.0	0.00	0.00	Fruitland Coal
1,200.0	0.00	0.00	1,200.0	0.0	0.0	0.0	0.00	0.00	
1,300.0	0.00	0.00	1,300.0	0.0	0.0	0.0	0.00	0.00	
1,359.0	0.00	0.00	1,359.0	0.0	0.0	0.0	0.00	0.00	Pictured Cliffs Ss.
1,400.0	0.00	0.00	1,400.0	0.0	0.0	0.0	0.00	0.00	
1,500.0	0.00	0.00	1,500.0	0.0	0.0	0.0	0.00	0.00	
1,533.0	0.00	0.00	1,533.0	0.0	0.0	0.0	0.00	0.00	Lewis Shale
1,600.0	0.00	0.00	1,600.0	0.0	0.0	0.0	0.00	0.00	
1,700.0	0.00	0.00	1,700.0	0.0	0.0	0.0	0.00	0.00	
1,800.0	0.00	0.00	1,800.0	0.0	0.0	0.0	0.00	0.00	
1,900.0	0.00	0.00	1,900.0	0.0	0.0	0.0	0.00	0.00	
2,000.0	0.00	0.00	2,000.0	0.0	0.0	0.0	0.00	0.00	
2,100.0	0.00	0.00	2,100.0	0.0	0.0	0.0	0.00	0.00	
2,108.0	0.00	0.00	2,108.0	0.0	0.0	0.0	0.00	0.00	Cliffhouse Ss.
2,200.0	0.00	0.00	2,200.0	0.0	0.0	0.0	0.00	0.00	
2,300.0	0.00	0.00	2,300.0	0.0	0.0	0.0	0.00	0.00	
2,400.0	0.00	0.00	2,400.0	0.0	0.0	0.0	0.00	0.00	
2,500.0	0.00	0.00	2,500.0	0.0	0.0	0.0	0.00	0.00	
2,600.0	0.00	0.00	2,600.0	0.0	0.0	0.0	0.00	0.00	
2,700.0	0.00	0.00	2,700.0	0.0	0.0	0.0	0.00	0.00	
2,800.0	0.00	0.00	2,800.0	0.0	0.0	0.0	0.00	0.00	
2,804.0	0.00	0.00	2,804.0	0.0	0.0	0.0	0.00	0.00	Menefee Fn.
2,900.0	0.00	0.00	2,900.0	0.0	0.0	0.0	0.00	0.00	
3,000.0	0.00	0.00	3,000.0	0.0	0.0	0.0	0.00	0.00	
3,100.0	0.00	0.00	3,100.0	0.0	0.0	0.0	0.00	0.00	
3,200.0	0.00	0.00	3,200.0	0.0	0.0	0.0	0.00	0.00	
3,300.0	0.00	0.00	3,300.0	0.0	0.0	0.0	0.00	0.00	
3,400.0	0.00	0.00	3,400.0	0.0	0.0	0.0	0.00	0.00	
3,500.0	0.00	0.00	3,500.0	0.0	0.0	0.0	0.00	0.00	
3,600.0	0.00	0.00	3,600.0	0.0	0.0	0.0	0.00	0.00	
3,700.0	0.00	0.00	3,700.0	0.0	0.0	0.0	0.00	0.00	
3,756.0	0.00	0.00	3,756.0	0.0	0.0	0.0	0.00	0.00	Point Lookout Ss.
3,800.0	0.00	0.00	3,800.0	0.0	0.0	0.0	0.00	0.00	
3,875.0	0.00	0.00	3,875.0	0.0	0.0	0.0	0.00	0.00	9 5/8"
3,900.0	0.00	0.00	3,900.0	0.0	0.0	0.0	0.00	0.00	
3,928.0	0.00	0.00	3,928.0	0.0	0.0	0.0	0.00	0.00	Mancos Shale
4,000.0	0.00	0.00	4,000.0	0.0	0.0	0.0	0.00	0.00	
4,060.0	0.00	0.00	4,060.0	0.0	0.0	0.0	0.00	0.00	KOP @ 4060'

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
Company: EnCana Oil & Gas (USA) Inc
Project: San Juan Co, NM
Site: S31-T24N-R9W
Well: Escrito H31-2409 01H
Wellbore: Hz
Design: Plan #1

Local Co-ordinate Reference: Well Escrito H31-2409 01H
TVD Reference: KB=13' @ 6844.0ft (Original Well Elev)
MD Reference: KB=13' @ 6844.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Planned Survey									
Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
4,100.0	4.00	270.50	4,100.0	0.0	-1.4	1.4	10.00	10.00	
4,200.0	14.00	270.50	4,198.6	0.1	-17.0	17.0	10.00	10.00	
4,300.0	24.00	270.50	4,293.1	0.4	-49.5	49.5	10.00	10.00	
4,400.0	34.00	270.50	4,380.4	0.9	-97.9	97.9	10.00	10.00	
4,500.0	44.00	270.50	4,458.0	1.4	-160.8	160.8	10.00	10.00	
4,520.9	46.09	270.50	4,472.8	1.5	-175.6	175.6	10.00	10.00	Mancos Silt
4,600.0	54.00	270.50	4,523.5	2.1	-236.2	236.2	10.00	10.00	
4,700.0	64.00	270.50	4,575.0	2.8	-321.8	321.8	10.00	10.00	
4,800.0	74.00	270.50	4,610.8	3.6	-415.0	415.0	10.00	10.00	
4,900.0	84.00	270.50	4,629.8	4.5	-513.0	513.0	10.00	10.00	
4,964.0	90.40	270.50	4,633.0	5.0	-576.9	577.0	10.00	10.00	Landing Pt @ 4964' MD; 90.4°
5,000.0	90.40	270.50	4,632.7	5.4	-612.9	612.9	0.00	0.00	
5,100.0	90.40	270.50	4,632.0	6.2	-712.9	712.9	0.00	0.00	
5,200.0	90.40	270.50	4,631.3	7.1	-812.9	812.9	0.00	0.00	
5,300.0	90.40	270.50	4,630.6	8.0	-912.9	912.9	0.00	0.00	
5,400.0	90.40	270.50	4,629.9	8.9	-1,012.9	1,012.9	0.00	0.00	
5,500.0	90.40	270.50	4,629.2	9.7	-1,112.9	1,112.9	0.00	0.00	
5,600.0	90.40	270.50	4,628.5	10.6	-1,212.9	1,212.9	0.00	0.00	
5,700.0	90.40	270.50	4,627.8	11.5	-1,312.9	1,312.9	0.00	0.00	
5,800.0	90.40	270.50	4,627.1	12.3	-1,412.9	1,412.9	0.00	0.00	
5,900.0	90.40	270.50	4,626.4	13.2	-1,512.9	1,512.9	0.00	0.00	
6,000.0	90.40	270.50	4,625.7	14.1	-1,612.9	1,612.9	0.00	0.00	
6,100.0	90.40	270.50	4,625.0	15.0	-1,712.8	1,712.9	0.00	0.00	
6,200.0	90.40	270.50	4,624.3	15.8	-1,812.8	1,812.9	0.00	0.00	
6,300.0	90.40	270.50	4,623.6	16.7	-1,912.8	1,912.9	0.00	0.00	
6,400.0	90.40	270.50	4,622.9	17.6	-2,012.8	2,012.9	0.00	0.00	
6,500.0	90.40	270.50	4,622.2	18.5	-2,112.8	2,112.9	0.00	0.00	
6,600.0	90.40	270.50	4,621.6	19.3	-2,212.8	2,212.9	0.00	0.00	
6,700.0	90.40	270.50	4,620.9	20.2	-2,312.8	2,312.9	0.00	0.00	
6,800.0	90.40	270.50	4,620.2	21.1	-2,412.8	2,412.9	0.00	0.00	
6,900.0	90.40	270.50	4,619.5	22.0	-2,512.8	2,512.9	0.00	0.00	
7,000.0	90.40	270.50	4,618.8	22.8	-2,612.8	2,612.9	0.00	0.00	
7,100.0	90.40	270.50	4,618.1	23.7	-2,712.8	2,712.9	0.00	0.00	
7,200.0	90.40	270.50	4,617.4	24.6	-2,812.8	2,812.9	0.00	0.00	
7,300.0	90.40	270.50	4,616.7	25.5	-2,912.8	2,912.9	0.00	0.00	
7,400.0	90.40	270.50	4,616.0	26.3	-3,012.8	3,012.9	0.00	0.00	
7,500.0	90.40	270.50	4,615.3	27.2	-3,112.8	3,112.9	0.00	0.00	
7,600.0	90.40	270.50	4,614.6	28.1	-3,212.8	3,212.9	0.00	0.00	
7,700.0	90.40	270.50	4,613.9	29.0	-3,312.8	3,312.9	0.00	0.00	
7,800.0	90.40	270.50	4,613.2	29.8	-3,412.7	3,412.9	0.00	0.00	
7,900.0	90.40	270.50	4,612.5	30.7	-3,512.7	3,512.9	0.00	0.00	
8,000.0	90.40	270.50	4,611.8	31.6	-3,612.7	3,612.9	0.00	0.00	
8,100.0	90.40	270.50	4,611.1	32.4	-3,712.7	3,712.9	0.00	0.00	
8,200.0	90.40	270.50	4,610.4	33.3	-3,812.7	3,812.9	0.00	0.00	
8,300.0	90.40	270.50	4,609.7	34.2	-3,912.7	3,912.9	0.00	0.00	
8,400.0	90.40	270.50	4,609.0	35.1	-4,012.7	4,012.9	0.00	0.00	
8,500.0	90.40	270.50	4,608.3	35.9	-4,112.7	4,112.9	0.00	0.00	
8,600.0	90.40	270.50	4,607.6	36.8	-4,212.7	4,212.9	0.00	0.00	
8,700.0	90.40	270.50	4,606.9	37.7	-4,312.7	4,312.9	0.00	0.00	
8,800.0	90.40	270.50	4,606.2	38.6	-4,412.7	4,412.9	0.00	0.00	
8,900.0	90.40	270.50	4,605.5	39.4	-4,512.7	4,512.9	0.00	0.00	
9,000.0	90.40	270.50	4,604.8	40.3	-4,612.7	4,612.8	0.00	0.00	

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
 Company: EnCana Oil & Gas (USA) Inc
 Project: San Juan Co, NM
 Site: S31-T24N-R9W
 Well: Escrito H31-2409 01H
 Wellbore: Hz
 Design: Plan #1

Local Co-ordinate Reference: Well Escrito H31-2409 01H
 TVD Reference: KB=13' @ 6844.0ft (Original Well Elev)
 MD Reference: KB=13' @ 6844.0ft (Original Well Elev)
 North Reference: True
 Survey Calculation Method: Minimum Curvature

Planned Survey

Measured Depth (ft)	Inclination (°)	Azimuth (°)	Vertical Depth (ft)	+N/-S (ft)	+E/-W (ft)	Vertical Section (ft)	Dogleg Rate (°/100ft)	Build Rate (°/100ft)	Comments / Formations
9,012.3	90.40	270.50	4,604.7	40.4	-4,624.9	4,625.1	0.00	0.00	TD at 9012.3 - Escrito H31-2409 01H PBHL

Targets

Target Name	hit/miss target	Dip Angle (°)	Dip Dir. (°)	TVD (ft)	+N/-S (ft)	+E/-W (ft)	Northing (ft)	Easting (ft)	Latitude	Longitude
Escrito H31-2409 01H P	- plan hits target center - Polygon	0.00	0.00	4,604.7	40.4	-4,624.9	1,918,423.75	2,721,706.79	36.272310	-107.838050
Point 1				4,604.7	300.0	-330.0	1,918,723.71	2,721,376.76		
Point 2				4,604.7	-300.0	-330.0	1,918,123.71	2,721,376.83		
Escrito H31-2409 01H 3-	- plan misses target center by 4607.0ft at 0.0ft MD (0.0 TVD, 0.0 N, 0.0 E) - Polygon	0.00	0.00	-4,607.0	0.0	0.0	1,918,383.86	2,726,331.70	36.272200	-107.822360
Point 1				-4,607.0	300.0	341.0	1,918,683.89	2,726,672.67		
Point 2				-4,607.0	-300.0	341.0	1,918,083.89	2,726,672.74		

Casing Points

Measured Depth (ft)	Vertical Depth (ft)	Name	Casing Diameter (in)	Hole Diameter (in)
500.0	500.0	13 3/8"	13.375	13.375
3,875.0	3,875.0	9 5/8"	9.625	9.625

Formations

Measured Depth (ft)	Vertical Depth (ft)	Name	Lithology	Dip (°)	Dip Direction (°)
630.0	630.0	Ojo Alamo Ss.		-0.40	270.50
756.0	756.0	Kirtland Shale		-0.40	270.50
1,117.0	1,117.0	Fruitland Coal		-0.40	270.50
1,359.0	1,359.0	Pictured Cliffs Ss.		-0.40	270.50
1,533.0	1,533.0	Lewis Shale		-0.40	270.50
2,108.0	2,108.0	Cliffhouse Ss.		-0.40	270.50
2,804.0	2,804.0	Menefee Fn.		-0.40	270.50
3,756.0	3,756.0	Point Lookout Ss.		-0.40	270.50
3,928.0	3,928.0	Mancos Shale		-0.40	270.50
4,520.9	4,474.0	Mancos Silt		-0.40	270.50

Cathedral Energy Services

Planning Report

Database: USA EDM 5000 Multi Users DB
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Project: San Juan Co, NM
Site: S31-T24N-R9W
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TVD Reference: KB=13' @ 6844.0ft (Original Well Elev)
MD Reference: KB=13' @ 6844.0ft (Original Well Elev)
North Reference: True
Survey Calculation Method: Minimum Curvature

Plan Annotations

Measured Depth (ft)	Vertical Depth (ft)	Local Coordinates		Comment
		+N/-S (ft)	+E/-W (ft)	
4,060.0	4,060.0	0.0	0.0	KOP @ 4060'
4,964.0	4,633.0	5.0	-576.9	Landing Pt @ 4964' MD; 90.4°
9,012.3	4,604.7	40.4	-4,624.9	TD at 9012.3

WELLHEAD BLOWOUT CONTROL SYSTEM



Well name and number:

Escrito H31-2409 01H

13 5/8" 3K Rotating Head

13 5/8" 3K Double (Blind/Pipe)
Ram

3K Mud Cross 3" gate valves

